

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



Applicant : Siegfried ANSORGE et al.

Confirmation No.: 4705

Serial No. : 10/575,883

Group Art Unit: 1614

(National Stage of PCT/EP2004/011645)

Examiner: not yet assigned

Filed : April 14, 2006 (I. A. Filed: October 15, 2004)

For : NOVEL DIPEPTIDYL PEPTIDASE IV INHIBITORS USED FOR  
FUNCTIONALLY INFLUENCING DIFFERENT CELLS AND  
TREATING IMMUNOLOGICAL, INFLAMMATORY, NEURONAL,  
AND OTHER DISEASES

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
U.S. Patent and Trademark Office  
Customer Service Window, Mail Stop Amendment  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Sir:

Pursuant to 37 C.F.R. § 1.56 and 37 C.F.R. §§ 1.97-1.98, Applicants hereby direct the Examiner's attention to the following documents cited in the International Search Report for International Application PCT/EP2004/011645, of which the above-referenced application is a National Stage:

- (1) WO 03/045977 A2, June 5, 2003;
- (2) U.S. Patent Application Publication No. 2005/0070482 A1  
(BACHOVCHIN), March 31, 2005; Applicants note that this document is a family member of document (1);
- (3) WO 03/035067 A1, May 1, 2003;

- (4) U.S. Patent Application Publication No. 2005/0004205 A1 (EVANS et al.), January 6, 2005; Applicants note that this document is a family member of document (3);
- (5) WO 2004/041820 A1, May 21, 2004;
- (6) U.S. Patent Application Publication No. 2004/0138214 A1 (HIMMELSBACH et al.), July 15, 2004; Applicants note that this document is a family member of document (5).

Applicants further direct the Examiner's attention to the following documents which are cited and discussed in the present application:

- (7) CHEN T. et al. "Dipeptidyl Peptidase IV Gene Family", Adv. Exp. Med. Biol., vol. 524, 2003, pp 79-86; Applicants note that this document is cited and discussed, beginning at page 1, line 8 of the present application;
- (8) DUKE-COHAN J.S. et al. "Serum High Molecular Weight Dipeptidyl Peptidase IV (CD26) is Similar to a Novel Antigen DPPT-L Released from Activated T Cells", The Journal of Immunology, vol. 156, 1996, pp. 1714-1721; Applicants note that this document is cited and discussed, beginning at page 1, line 10 of the present application;
- (9) LENDECKEL U. et al. "Role of alanyl aminopeptidase in growth and function of human T cells (Review)", International Journal of Molecular Medicine, vol. 4, 1999, pp. 17-27; Applicants note that this document is

cited and discussed, beginning at page 1, line 15 of the present application;

- (10) KÄHNE T. et al. "Dipeptidyl peptidase IV: A cell surface peptidase involved in regulating T cell growth (Review)", International Journal of Molecular Medicine, vol. 4, 1999, pp. 3-15; Applicants note that this document is cited and discussed, beginning at page 1, line 16 of the present application;
- (11) DE MEESTER I. et al. "Dipeptidyl Peptidase IV Substrates", Adv. Exp. Med. Biol., vol. 524, pp. 3-17 (2002); Applicants note that this document is cited and discussed, beginning at page 1, line 17 of the present application;
- (12) EVANS D. M. "Dipeptidyl Peptidase IV Inhibitors", IDrugs, vol. 5, no. 6, 2002, pp. 577-585; Applicants note that this document is cited and discussed, beginning at page 1, line 30 of the present application;
- (13) BARRETT A. J. et al. Membrane "Alanyl aminopeptidase" and "Aminopeptidase PS" in "Handbook of Proteolytic Enzymes", Academic Press, 1998; Applicants note that this document is cited and discussed, beginning at page 7, line 20 of the present application;
- (14) WO 01/89569 A1, November 29, 2001; Applicants note that this document is cited and discussed, beginning at page 1, line 18 of the present application;

- (15) U.S. Patent Application Publication No. 2005/0014699 A1 (ANSORGE et al.), January 20, 2005; Applicants note that this document is a family member of document (14);
- (16) WO 02/053170 A2, July 11, 2002; Applicants note that this document is cited and discussed, beginning at page 1, line 19 the present application;
- (17) WO 2004/004750 A2, January 15, 2004; Applicants note that this document is cited and discussed, beginning at page 1, line 20 of the present application;
- (18) U.S. Patent Application Publication No. 2006/0211602 A1 (ANSORGE et al.), September 21, 2006; Applicants note that this document is a family member of document (17);
- (19) WO 02/053169 A2, July 11, 2002; Applicants note that this document is cited and discussed, beginning at page 1, line 22 of the present application;
- (20) U.S. Patent Application Publication No. 2004/0147434 A1 (ANSORGE et al.), July 29, 2004; Applicants note that this document is a family member of document (19);
- (21) DE 103 37 074 A1, March 17, 2005; Applicants note that this document is cited and discussed, beginning at page 1, line 22 of the present application;

- (22) U.S. Patent Application Publication No. 2005/0113310 A1 (STRIGGOW et al.), May 26, 2005; Applicants note that this document is a family member of document (21);
- (23) DE 103 30 842 A1, February 10, 2005, accompanied by an English language abstract thereof (provided by esp@cenet); Applicants note that this document is cited and discussed, beginning at page 1, line 23 of the present application;
- (24) WO 03/077935 A1, September 25, 2003; Applicants note that this document is cited and discussed, beginning at page 1, line 24 of the present application;
- (25) U.S. Patent Application Publication No. 2006/0040850 A1 (ANSORGE et al.), February 23, 2006; Applicants note that this document is a family member of document (24);
- (26) DD 296 075 A5, November 21, 1991; Applicants note that this document is cited and discussed, beginning at page 15, line 2 of the present application.

Furthermore, Applicants direct the Examiner to the following copending and commonly assigned applications:

- (27) U.S. Patent Application No. 10/575,878 to ANSORGE et al. filed April 14, 2006 and entitled "DUAL ALANYL AMINOPEPTIDASE AND DIPEPTIDYL PEPTIDASE IV INHIBITORS FOR FUNCTIONALLY INFLUENCING DIFFERENT CELLS AND FOR TREATING

IMMUNOLOGICAL, INFLAMMATORY, NEURONAL AND OTHER DISEASES"; Applicants note that this document is a national stage of International Application PCT/EP2004/011644;

- (28) U.S. Patent Application No. 10/575,882 to ANSORGE et al. filed April 14, 2006 and entitled "NOVEL ALANYL-AMINO PEPTIDASE INHIBITORS FOR FUNCTIONALLY INFLUENCING DIFFERENT CELLS AND TREATING IMMUNOLOGICAL, INFLAMMATORY, NEURONAL, AND OTHER DISEASES"; Applicants note that this document is a national stage of International Application PCT/EP2004/011643.

Applicants further direct the Examiner's attention to the following documents that were made of record in the above-listed copending and commonly assigned applications (27) and (28):

- (29) Database Beilstein XP-002320599, database accession no. 7444296, Chemical Name actinonin; and references cited therein;
- (30) Database Beilstein XP-002320600, database accession no. 2121406, and references cited therein;
- (31) Abstract of ECKSTEIN Z. et al. "The fungistatic activity of 3,4-dichlorophenoxyacethydroxamic acid on pathogenic fungi in vitro" Bull. acad. polon. sci. ser. sci., chim., geol. et geograph., 1958, (6), pp. 235-238 (abstract retrieved from STN);

- (32) Abstract of ALK'EWICZ J. et al. "Fungistatic activity of some hydroxamic acids" *Nature*, vol. 180, 1957, pp. 1204-1205 (abstract retrieved from STN);
- (33) KONTOYIANNIS D. P. et al. "Aminopeptidase N inhibitors and SARS", *The Lancet*, vol. 361, 2003, p. 1558;
- (34) FOURNIÉ-ZALUSKI et al. "New Selective Aminopeptidase N Inhibitors as Potential Therapeutics" in J. Langner and S. Ansorge, "Ectopeptidase", Kluwer Academic/Plenum Publisher, 2002, pp. 51-94;
- (35) KOMODA M. et al. "Specific Inhibitor of Puromycin-Sensitive Aminopeptidase with a Homophthalimide Skeleton: Identification of the Target Molecule and a Structure-Activity Relationship Study", *Bioorganic & Medicinal Chemistry*, vol. 9, 2001, pp. 121-131;
- (36) HASHIMOTO Y. "Structural Development of Biological Response Modifiers Based on Thalidomide" *Bioorganic & Medicinal Chemistry*, vol. 10, 2002, pp. 461-479;
- (37) BUGNI T. et al. "*p*-Sulfooxyphenylpyruvic acid from the red macro alga *Ceratodictyon spongiosum* and its sponge symbiont *Haliclona cymaeformis*", *Phytochemistry*, vol. 60, no. 4, 2002, pp. 361-363;
- (38) OGATA M. et al. "Synthesis and Antifungal Activity of a Series of Novel 1,2-Disubstituted Propenones", *Journal of Medicinal Chemistry*, vol. 30, 1987, pp. 1497-1502;
- (39) BOGER D. L. et al. "Non-Amide-Based Combinatorial Libraries Derived from *N*-Boc-Iminodiacetic Acid: Solution-Phase Synthesis of

- Piperazinone Libraries with Activity Against LEF-1/ $\beta$ -Catenin-Mediated Transcription", Helvetica Chimica Acta, vol. 83, 2000, pp. 1825-1845;
- (40) MITTAL S. et al. "Structure-Activity Relationship of Estrogens: Receptor Affinity and Estrogen Antagonist Activity of Certain (*E*)- and (*Z*)-1,2,3-Triaryl-2-propen-1-ones", Journal of Medicinal Chemistry, vol. 28, 1985, pp. 492-497;
- (41) CUSHMAN M. et al. "Synthesis and Evaluation of Analogues of (*Z*)-1-(4-Methoxyphenyl)-2-(3,4,5-trimethoxyphenyl)ethene as Potential Cytotoxic and Antimitotic Agents", Journal of Medicinal Chemistry, vol. 35, 1992, pp. 2293-2306;
- (42) ASTLES P. C. et al. "Selective Endothelin A Receptor Antagonists. 4. Discovery and Structure-Activity Relationships of Stilbene Acid and Alcohol Derivatives", Journal of Medicinal Chemistry, vol. 41, 1998, pp. 2745-2753;
- (43) MEANWELL N. A. et al. "Nonprostanoid Prostacyclin Mimetics. 4. Derivatives of 2-[3-[2-(4,5-Diphenyl-2-oxazolyl)ethyl]phenoxy]acetic Acid Substituted  $\alpha$  to the Oxazole Ring", Journal of Medicinal Chemistry, vol. 36, 1993, pp. 3871-3883;
- (44) AUGUSTYNS K. et al "The Unique Properties of Dipeptidyl-peptidase IV (DPP IV / CD26) and the Therapeutic Potential of DPP IV Inhibitors", Current Medicinal Chemistry, vol. 6, no. 4, 1999, pp 311-327;



- (45) DE 101 55 093 A1, June 12, 2003; Applicants note that this document is a family member of document (16);
- (46) U.S. Patent Application Publication No. 2004/0132639 A1 (ANSORGE et al.), July 8, 2004; Applicants note that this document is a family member of document (16) and (45);
- (47) U.S. Patent Application Publication No. 2002/0198205 A1 (HIMMELSBACH et al.), December 26, 2002.

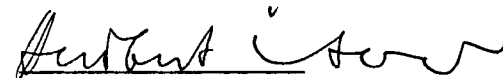
Copies of the above-listed documents (with the exception of U.S. patent applications), the International Search Report and the International Preliminary Report on Patentability (English language translation) for International Application PCT/EP2004/011645 are enclosed together with a completed copy of the Form PTO-1449 listing these documents. Accordingly, the Examiner is requested to consider these documents and to indicate such consideration by returning a signed and initialed copy of the Form PTO-1449 with the next official communication.

Further to the U.S. Patent and Trademark Office's decision to waive the requirement under 37 C.F.R. §1.98 (a)(2)(iii) if a U.S. patent application was filed after June 30, 2003, copies of the U.S. patent applications cited above are not enclosed herewith. However, if copies are needed, the Examiner is respectfully requested to contact the undersigned.

Applicants note that an Office Action on the merits has not yet issued in the instant application, and thus, no fee is necessary to ensure consideration of this statement. However, if an Office Action has issued and is crossing in the mail with this statement, the Patent and Trademark Office is hereby authorized to charge Deposit Account No. 19-0089 any fee necessary to ensure consideration of the submitted materials.

Should there be any questions, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,  
Siegfried ANSORGE et al.

  
Neil F. Greenblum  
Reg. No. 28,394

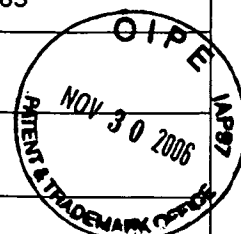
November 7, 2006  
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FORM PTO-1449

U.S. Department of Commerce  
Patent and Trademark OfficeAtty. Docket No.  
P29678Application No.  
10/575,883INFORMATION DISCLOSURE STATEMENT  
BY APPLICANT

(Use several sheets if necessary)

Applicant  
Siegfried ANSORGE et al.Filing Date  
April 14, 2006Group  
1614

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	2005	0 0 7 0 4 8 2	03/31/05	BACHOVCHIN			
	2005	0 0 0 4 2 0 5	01/06/05	EVANS et al.			
	2004	0 1 3 8 2 1 4	07/15/04	HIMMELSBACH et al.			
	2005	0 0 1 4 6 9 9	01/20/05	ANSORGE et al.			
	2006	0 2 1 1 6 0 2	09/21/06	ANSORGE et al.			
	2004	0 1 4 7 4 3 4	07/29/04	ANSORGE et al.			
	2005	0 1 1 3 3 1 0	05/26/05	STRIGGOW et al.			

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	03	/ 0 4 5 9 7 7	06/05/03	W.I.P.O			
	03	/ 0 3 5 0 6 7	05/01/03	W.I.P.O			
	2004	/ 0 4 1 8 2 0	05/21/04	W.I.P.O			
	01	/ 8 9 5 6 9	11/29/01	W.I.P.O			
	02	/ 0 5 3 1 7 0	07/11/02	W.I.P.O			
	02	/ 0 5 3 1 6 9	07/11/02	W.I.P.O			
	2004	/ 0 0 4 7 5 0	01/15/04	W.I.P.O			
	1	0 3 3 7 0 7 4	03/17/05	GERMANY			
	1	0 3 3 0 8 4 2	02/10/05	GERMANY			

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	1	CHEN T. et al. "Dipeptidyl Peptidase IV Gene Family", Adv. Exp. Med. Biol., vol. 524, 2003, pp 79-86.
	2	DUKE-COHAN J.S. et al. "Serum High Molecular Weight Dipeptidyl Peptidase IV (CD26) is Similar to a Novel Antigen DPPT-L Released from Activated T Cells", The Journal of Immunology, vol. 156, 1996, pp. 1714-1721.
	3	LENDECKEL U. et al. "Role of alanyl aminopeptidase in growth and function of human T cells (Review)", International Journal of Molecular Medicine, vol. 4, 1999, pp. 17-27.
	4	KÄHNE T. et al. "Dipeptidyl peptidase IV: A cell surface peptidase involved in regulating T cell growth (Review)", International Journal of Molecular Medicine, vol. 4, 1999, pp. 3-15.
	5	DE MEESTER I. et al. "Dipeptidyl Peptidase IV Substrates", Adv. Exp. Med. Biol., vol. 524, pp. 3-17 (2002).
	6	EVANS D. M. "Dipeptidyl Peptidase IV Inhibitors", IDrugs, vol. 5, no. 6, 2002, pp. 577-585.
	7	BARRETT A. J. et al. Membrane "Alanyl aminopeptidase" and "Aminopeptidase PS" in "Handbook of Proteolytic Enzymes", Academic Press, 1998.
	8	English language Abstract of DE 10330842.

EXAMINER

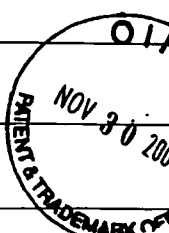
/Marcos Sznaidman/

DATE CONSIDERED

08/22/2008

\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449		U.S. Department of Commerce Patent and Trademark Office		Atty. Docket No. P29678		Application No. 10/575,883	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (Use several sheets if necessary)				Applicant Siegfried ANSORGE et al.			
				Filing Date April 14, 2006		Group 1614	



U.S. PATENT DOCUMENTS							
EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE	
	2006 0 0 4 0 8 5 0	02/23/06	ANSORGE et al.				

FOREIGN PATENT DOCUMENTS							
DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO		
03 / 0 7 7 9 3 5	09/25/03	W.I.P.O					
2 9 6 0 7 5	11/21/91	GERMANY DEMOCRATIC REPUBLIC					

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)	
9	U.S. Patent Application No. 10/575,878 to ANSORGE et al. filed April 14, 2006 and entitled "DUAL ALANYL AMINOPEPTIDASE AND DIPEPTIDYL PEPTIDASE IV INHIBITORS FOR FUNCTIONALLY INFLUENCING DIFFERENT CELLS AND FOR TREATING IMMUNOLOGICAL, INFLAMMATORY, NEURONAL AND OTHER DISEASES".
10	U.S. Patent Application No. 10/575,882 to ANSORGE et al. filed April 14, 2006 and entitled "NOVEL ALANYL-AMINO PEPTIDASE INHIBITORS FOR FUNCTIONALLY INFLUENCING DIFFERENT CELLS AND TREATING IMMUNOLOGICAL, INFLAMMATORY, NEURONAL, AND OTHER DISEASES".
11	Database Beilstein XP-002320599, database accession no. 7444296, Chemical Name actinonin; and references cited therein.
12	Database Beilstein XP-002320600, database accession no. 2121406, and references cited therein.
13	Abstract of ECKSTEIN Z. et al. "The fungistatic activity of 3,4-dichlorophenoxyacethydroxamic acid on pathogenic fungi in vitro" Bull. acad. polon. sci. ser. sci., chim., geol. et geograph., 1958, (6), pp. 235-238 (abstract retrieved from STN).
14	Abstract of ALK'EWICZ J. et al. "Fungistatic activity of some hydroxamic acids" Nature, vol. 180, 1957, pp. 1204-1205 (abstract retrieved from STN).
15	KONTOYIANNIS D. P. et al. "Aminopeptidase N inhibitors and SARS", The Lancet, vol. 361, 2003, p. 1558.
16	FOURNIÉ-ZALUSKI et al. "New Selective Aminopeptidase N Inhibitors as Potential Therapeutics" in J. Langner and S. Ansorge, "Ectopeptidase", Kluwer Academic/Plenum Publisher, 2002, pp. 51-94.
17	KOMODA M. et al. "Specific Inhibitor of Puromycin-Sensitive Aminopeptidase with a Homophthalimide Skeleton: Identification of the Target Molecule and a Structure-Activity Relationship Study", Bioorganic & Medicinal Chemistry, vol. 9, 2001, pp. 121-131.
18	HASHIMOTO Y. "Structural Development of Biological Response Modifiers Based on Thalidomide" Bioorganic & Medicinal Chemistry, vol. 10, 2002, pp. 461-479.
19	BUGNI T. et al. "p-Sulfooxyphenylpyruvic acid from the red macro alga <i>Ceratodictyon spongiosum</i> and its sponge symbiont <i>Haliclona cymaeformis</i> ", Phytochemistry, vol. 60, no. 4, 2002, pp. 361-363.
20	OGATA M. et al. "Synthesis and Antifungal Activity of a Series of Novel 1,2-Disubstituted Propenones", Journal of Medicinal Chemistry, vol. 30, 1987, pp. 1497-1502.

EXAMINER /Marcos Sznajdman/	DATE CONSIDERED 08/22/2008
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\*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.S./

